1530

SITE: BIG RIVER MINE
ID#: MOD981126299
BREAK: 6.3
OTHER: MDNR

MEMORANDUM

Date: April 25, 1980

To: Richard Rankin, Director, Water Pollution Control Program

From: TBE Thomas B. Ellis, Env. Eng., Solid Waste Management Program

Subject: St. Francois County - Monitoring of Desloge Lead Mine Tailings

This morning we received the lab report back on the monitoring at the Desloge lead mine tailing site on March 18, 1980. As you know, the monitoring was prompted by statements in Dr. Novak's report regarding the effect of the landfill (anaerobic decomposition and associated acid formation) on mobilization of metals, particularly lead and zinc, in the lead mine tailings setting.

Three sampling points were identified per general suggestions by Mr. Tom Dean of the Geology and Land Survey. These points are identified in the lab report and generally located in the concrete tunnel which runs under the tailings pond at the east edge of the landfill, and at the inlet and exit of the rock tunnel (which serves to direct the flow of the surface drainage coming from the south) to the Big River due west of the tailings pond and landfill site. The concrete tunnel previously mentioned has apparently been constructed to collect the discharge from the surface drainage structures in the south or middle of the tailings pond. This concrete tunnel is also thought to collect underground seepage of water from the tailings pond and to direct its flow to the inlet of the rock tunnel.

A copy of the lab results is attached for your information. From our review of the results it is apparent that the levels of lead, zinc and cadmium are not elevated beyond what might be expected to be measured in ground and surface water given any lead mine tailings pond setting. In fact, the levels of all metals tested are within the levels established as standards for drinking water supplies in the State of Missouri. It is felt that the landfill has not caused gross mobilization of lead, zinc or cadmium.

The laboratory results suggest to us that further testing to determine impact of the landfill is not warranted at this time. We do not plan to request further analysis.

If you would like to discuss the monitoring program and results further, please advise.

TBE:dl

Attachment

cc: Mr. Jim Burris, Poplar Bluff Regional Office
Mr. James Long, Laboratory Services Program
Dr. Jim Williams, Division of Geology and Land Survey

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
LABORATORY SERVICES PROGRAM

Report of Investigation
St. Francois County Landfill
March 18, 1980

INTRODUCTION

During the period from 1000 to 1330, March 18, 1980, an investigation was conducted of the St. Francois County Landfill near Desloge, Missouri. The investigation was requested by the Solid Waste Management Program. Sampling and field analysis were conducted by Larry Alderson of the Laboratory Services Program, DEQ and Jim Doesburg of the Water Pollution Control Program, DEQ.

METHODS

Grab samples were collected by filling appropriate containers at the following three (3) sites;

Site #1) The concrete tunnel on the east side near landfill entrance;

Site #2) rock tunnel on the east side near landfill entrance; and

Site #3) rock tunnel on the west side of landfill area.

Analyses for pH and specific conductance and filtering for dissolved metals was conducted at the collection site. The remainder of the analyses were conducted at the Divisional Laboratory located in Jefferson City, Missouri.

Procedures used in the analyses were in accordance with methods recognized by the Missouri Clean Water Commission Effluent Regulation (10 CSR 20-7.020).

OBSERVATIONS

Accompanied by two geologists from the Division of Geology and Land Survey, samples were collected from the three (3) previously mentioned sites. Several additional samples were collected by the geologists who were supplied with bottles containing HNO_3 preservative, the use of filtering apparatus for dissolved metals and meters for pH and specific conductance by the Laboratory Services Program.

The concrete tunnel (Site #1) contained static water in a pool just inside the tunnel opening. The rock tunnel appeared to have been built to divert the flow from a small stream which ran down into the tunnel from the east (Site #2) and exited west of the tailings area (Site #3) where it flowed a short distance before entering the Big River. The water from all three (3) sites was clear.

OBSERVATIONS (Cont'd)

The landfill operator indicated that an old landfill used by the City of Desloge once existed in the area above the rock tunnel.

Trash and blown papers were found in several areas around the landfill area.

RESULTS

	SITE #1	SITE #2	SITE #3
Sample Number	80-6149	80-6150	80-6151
Date Collected	3-18-80	3-18-80	3-18-80
Time Collected	1145	1200	1230
COD (mg/l)	6.6	29.3	22.7
pH (Units)	6.6	7.3	7.3
Specific Cond (mmho/cm @25°C)	800	460	460
Cd (ug/l), Dissolved	4.5	.1	.3
Cd (ug/l), Total	4.6	.1	.3
Fe (ug/l) Dissolved	8	82	40
Fe (ug/l), Total	85	702	679
Pb (ug/l), Dissolved	38	9	13
Pb (ug/l), Total	52	13	15
Zn (ug/l), Dissolved	3.4	9	72
Zn (ug/l), Total	3.4	16	89

CONCLUSION

The results indicate that some metals were being picked up as the water from the small stream ran through the rock tunnel. The exact source of these metals however, is not known.

Submitted by

Larry D. Alderson
Environmental Specialist

Date April 24, 1980

Approved by

James H. Long, Director
Laboratory Services Program

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